

The application seeks full planning permission for boreholes beneath land within the Borough. The boreholes are to be drilled in connection with a proposed geothermal heat plant (or energy centre) that is proposed at Festival Way, Stoke and an associated planning application is currently being considered by the City Council (SOTCC reference [60407/FUL](#))

The boreholes as proposed are to have a diameter of between about 76cm reducing to about 13cm as follows:

*Borehole 1* – to be initially drilled to a depth of 1,850 m after which it deviates out and under land within the Borough to a maximum depth of 4,000m. The horizontal distance of this borehole is 1.4km with approximately 40% of its length being within the Borough. Geothermal water will be extracted from this borehole prior to being passed through heat exchangers on Festival Way.

*Borehole 2* – to be initially drilled to a depth of 1,350m after which it deviates out and under land within the Borough to a maximum depth of 3,750m. The horizontal distance of this borehole is 2.3km with approximately 73% of its length being within the Borough. The water will be reinjected via this borehole once the heat has been extracted.

The application is supported by an Environmental Statement.

**The 16 week period for this application expires on 13<sup>th</sup> February 2017.**

#### **RECOMMENDATION**

**PERMIT subject to the following conditions:**

- **No extraction of geothermal water to commence until the specific details of the protocol and the threshold levels for the implementation of the threshold-based traffic light system associated with the monitoring of seismic activity have been submitted and approved by the Local Planning Authority. Operation of the energy centre and extraction of geothermal water to proceed in accordance with the approved protocol and threshold levels unless otherwise agreed by the Local Planning Authority.**
- **Development to be carried out in all other respects in accordance with the submitted information including the identified mitigation measures.**
- **Any other conditions that are reasonable and appropriate to this development that ensures consistency with the decision of the City Council in respect of application reference 60407/FUL**

#### **Reason for Recommendation**

The proposed development involves the development of a renewable energy source which is promoted and supported by local and national policy and addresses climate change aims for reducing carbon dioxide emissions and ensuring secure, clean and affordable energy. The part of the development that lies within the Borough of Newcastle raises limited issues and it has been demonstrated, subject to approval of further details, that no adverse impacts would arise from the development as a result of induced seismic activity, impact on underground aquifers and contaminated land.

## **Statement as to how the Local Planning Authority has worked in a positive and proactive manner in dealing with the planning application**

This is considered to be a sustainable form of development and so complies with the provisions of the National Planning Policy Framework.

### **Key Issues**

This is a cross border application. The development involves the drilling of two deep boreholes and the construction of an energy centre to house both boreholes. The energy centre is located on Festival Way as are the first sections of the boreholes, and as such these elements are the subject of a separate application to Stoke City Council. The application for consideration by Newcastle Borough Council is for two boreholes.

Geothermal water is to be abstracted via one of the boreholes which would subsequently be passed through heat exchangers in the geothermal heat plant at the proposed energy centre before it is reinjected via the second borehole. The heat from the geothermal water is harnessed at the heat exchanger located at the energy centre which will then be distributed via a District Heat Network (DHN) to all connected end users for heat and hot water purposes. The programme to install the DHN is to be developed by Stoke City Council within the City boundary.

The proposal is therefore to develop a renewable energy source.

The project as a whole raises a number of issues. Issues relating to air quality; noise; traffic and transport; and ecology are associated with the construction of the energy centre and its operation located on Festival Way, and as such are not material to the determination of this application. The energy centre will have a visual impact and has the potential to affect heritage, however these impacts will only be within the City Council's area and again are not material to the determination of this application. The depth of the boreholes beneath the Borough is such that it will not have an adverse impact on any underground archaeology. Any potential issues arising from contamination and impacts on underground aquifers are addressed through the borehole been lined by a casing which is to be set in concrete. Given the depth of the boreholes within the Borough it is not anticipated that any other issues that could affect residential amenity will arise.

In light of the above key issues for further consideration in the determination of this application are therefore:

- The principle of the proposed geo thermal heat energy centre
- Seismicity (the occurrence or frequency of earthquakes)

### **Principle of the proposed geo thermal heat energy centre**

Strategic Aim 17 of the CSS is to minimise the adverse impacts of climate change in the move towards zero carbon growth through energy efficiency, promoting the use of renewable energy sources and green construction methods in accordance with best practice. CSS Policy CSP3 states that development which positively addresses the impacts of climate change and delivers a sustainable approach will be encouraged.

The NPPF, at paragraph 17, sets out core principles which, amongst others, include the need to support the transition to a low carbon future in a changing climate and to encourage the use of renewable resources. At paragraph 97 it directs local authorities to consider within their policies how they can actively:

- Support infrastructure relating to renewable and low carbon energy sources.
- Support opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

The proposal for determination by the Borough Council is therefore promoted and supported by local and national policy and as such the proposal is acceptable in principle.

### Seismicity (the occurrence or frequency of earthquakes)

The area is already affected by historic seismic activity and as such it is necessary to consider whether such activity can be induced by the proposed development.

The submission addresses this, indicating that seismic monitoring will be undertaken for a month prior to the commencement of the construction of the energy centre and for a minimum of three months in advance of the commencement of drilling. This is referred to as the phase 1 monitoring period and will provide baseline data against which seismic activity occurring when the energy centre is operational and geothermal water is being extracted can be compared. Network sensors will be installed in the boreholes which will monitor seismic activity during the operation of the geothermal energy centre.

In accordance with systems introduced for similar geothermal systems in densely populated sensitive areas a threshold based traffic light system will be implemented whereby extracted geothermal water will only be reinjected where it can be done without the potential that seismic activity is induced (green = injection proceeds as planned; amber = injection proceeds with caution, possibly at reduced rates with monitoring intensified; red = injection is suspended immediately). The specific details of the protocol and the thresholds levels to be set for its implementation will only be available once baseline data from the phase 1 monitoring period is recorded and analysed.

Subject to a condition which secures the details of the protocol and thresholds and their subsequent implementation it is considered that any potential for the development to induce seismic activity is appropriately mitigated against.

## APPENDIX

### **Policies and proposals in the approved development plan relevant to this decision:-**

[Newcastle-under-Lyme and Stoke-on-Trent Core Spatial Strategy \(CSS\) 2006-2026](#)

Strategic Aim 17 (referred to in the key issues section above)  
Policy CSP3: Sustainability and Climate Change

[Newcastle-under-Lyme Local Plan \(NLP\) 2011](#)

None

### **Other Material Considerations include:**

[National Planning Policy Framework \(NPPF\) \(2012\)](#)  
[Planning Practice Guidance \(PPG\) \(2014\)](#)  
[White Paper - Meeting the Energy Challenge \(2007\)](#)  
[The Climate Change Act 2008](#)  
[UK Low Carbon Transition Plan \(2009\)](#)

### Relevant Planning History

None relevant

### Views of Consultees

The **Coal Authority** comments that the application site does not fall within the defined Development High Risk Area and there is therefore no requirement for a Coal Mining Risk Assessment.

**East Newcastle Locality Action Partnership** has not provided any comments by the due date and so are assumed to have no observations upon the application.

### Representations

An objection has been received due to concerns about the future value and resale issues of properties under which the boreholes are to be sited and any environmental impacts that arise from the development.

### Applicant's/Agent's submission

The application is supported by an Environmental Statement, Flood Risk Assessment and a supporting statement specific to the Borough.

The application form and location plan and supporting information are available for inspection at the Guildhall and on the website that can be accessed by following this link <http://publicaccess.newcastle-staffs.gov.uk/online-applications/PLAN/16/00893/FUL>

### Background papers

Planning files referred to  
Planning Documents referred to

### Date report prepared

17<sup>th</sup> January 2017